

Amendment to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (previously presented): An electronic circuit comprising:
a first electrode for electrical connection to an ionization detector system;
a second electrode for electrical connection to the ionization detector system;
a transformer electrically connected to the first electrode and to the second electrode for creating a spark between the first electrode and the second electrode; and
a conjugated clock input electrically connected to the transformer.

Claim 2 (original): The electronic circuit of claim 1, further comprising a first resistor electrically connected to a secondary coil in a secondary portion of the transformer.]

Claim 3 (original): The electronic circuit of claim 2, further comprising a second resistor electrically connected to the secondary coil in the secondary portion of the transformer.

Claim 4 (original): The electronic circuit of claim 3, wherein the second resistor is connected in series with the first resistor.

Claim 5 (original): The electronic circuit of claim 3, wherein the second resistor is connected in parallel with a diode.

Claim 6 (canceled).

Claim 7 (original): The electronic circuit of claim 1, wherein the transformer comprises:

a primary portion including a primary coil; and
a secondary including a secondary coil, wherein the primary coil includes a different number of loops than are present in the secondary coil.

Claim 8 (original): The electronic circuit of claim 7, wherein the primary coil includes a greater number of loops than are present in the secondary coil.

Claim 9 (original): The electronic circuit of claim 1, further comprising a DC voltage source electrically connected to a primary portion of the transformer.

Claim 10 (original): The electronic circuit of claim 9, further comprising a current monitor electrically connected to the DC voltage source.

Claim 11 (previously presented): A method of generating an electrical discharge for an ionization detector system comprising:

providing a first electrode and a second electrode, each electrically connected to the ionization system;

providing a transformer electrically connected to the first electrode and the second electrode;

inputting a DC voltage into the primary portion of the transformer; and

generating a discharge current having at least a first steady-state current plateau and a second steady-state current plateau between the first electrode and the second electrode.

Claim 12 (original): The method of claim 11, wherein the providing the transformer step comprises including a first resistor in a secondary portion of the transfer

Claim 13 (original): The method of claim 12, wherein the providing the transformer step comprises including a second resistor in the secondary portion of the transformer.

Claim 14 (original): The method of claim 13, wherein the providing the transformer step comprises connecting the second resistor in parallel with a diode.

Claim 15 (original): The method of claim 13, further comprising monitoring a current input.

Claim 16 (original): The method of claim 13, wherein the providing the transformer step comprises providing a primary coil and a secondary coil in the transformer wherein the primary coil and the secondary coil include a different numbers of loops.

Claim 17 (original): The method of claim 16, wherein the providing the transformer step comprises providing the primary coil to have a greater number of loops than the secondary coil.

Claim 18 (original): The method of claim 12, wherein the generating the discharge current step comprises generating a substantially constant steady-state current plateau.

Claim 19 (canceled).

Claim 20 (previously presented): The method of claim 11, wherein the generating the discharge current step comprises providing the net amplitude of a first steady-state current plateau exceeding the amplitude of a second steady-state current plateau.

Claim 21 (currently amended): An electronic circuit comprising:

a first electrode for electrical connection to an ionization detector system;

a second electrode for electrical connection to the ionization detector system;

a transformer electrically connected to the first electrode and to the second electrode for creating a spark between the first electrode and the second electrode;

a DC voltage source electrically connected to a primary portion of the transformer; and

a current monitor electrically connected to a primary portion of the transformer; and

a resistor, a capacitor and transistor electrically connected in series to the primary portion of the transformer, wherein the capacitor interacts with a current through the resistor to limit a slew rate of a gate voltage on the transistor, which in turn limits a slew rate of the transformer primary voltage.

Claim 22 (currently amended): A method of generating an electrical discharge for an ionization detector system comprising:

providing a first electrode and a second electrode, each electrically connected to the ionization system;

providing a transformer electrically that is connected to the first electrode and the second electrode, including a first resistor and a second resistor in a secondary portion of the transformer;

inputting a DC voltage into the primary portion of the transformer;

generating a discharge current between the first electrode and the second electrode; and

monitoring a current input; and

controlling a slew rate of a voltage in the secondary portion of the transformer for a sufficient amount of time to cause the discharge current to go to zero.